

**REMARKS**

**I. STATUS OF THE CLAIMS**

The Examiner rejected claims 1-5 and 7-15. Independent claims 1, 14, and 15 are amended herein. Support for the amended claims may be found for example, on page 20, line 3 thru page 22, line 2. Thus, in view of the forgoing claims 1-5 and 7-15 are pending for reconsideration which is requested.

No new matter is being presented, and approval of the claims is respectfully requested. The Examiner's rejections are traversed below.

**II. CLAIMS 1-14 ARE OBJECTED TO BECAUSE OF INFORMALITIES**

Independent claims 1, 14 and 15 are amended herein to overcome the rejection. Therefore, it is respectfully submitted, the rejection is overcome.

**III. CLAIMS 1, 5, AND 7-15 ARE REJECTED UNDER 35 U.S.C. 103(a) AS BEING UNPATENTABLE OVER SHIRASAKI (U.S. 5,930,045) IN VIEW OF SPILLER ET AL. (U.S. 6,134,049) AND OKUMURA ET AL. (U.S. 5,969,902)**

The rejections of claims are respectfully traversed and reconsideration is requested. Claim 1, for example, recites an optical device, comprising a substrate having a first surface and a second surface, wherein **the first surface of the substrate is opposite the second surface of the substrate**. Claim 1, for example, also recites **a first multi-layer film** formed on the first surface of the substrate and **a fixing material** having substantially a same thermal expansion coefficient as the substrate and fixed to the first multi-layer film and the first surface. Further, claim 1, for example, recites **a second multi-layer film** formed on the second surface of the substrate. In addition, claim 1, for example, recites **a stress correction film** formed on the second multi-layer film, **correcting distortion of the substrate** due to a difference in stress between the first and second multi-layer films formed on the first and second surfaces, respectively.

The cited references fail to disclose **a second multi-layer film formed on the second surface of the substrate, wherein the first surface of the substrate is opposite the second surface of the substrate**, as recited, for example, in claim 1. Furthermore, the Applicant also

asserts the cited references fail to disclose **correcting distortion of the substrate** due to a difference in stress between the first and second multi-layer films formed on the first and second surfaces, as recited, for example, in claim 1.

The Examiner asserts that Shirasaki teaches an optical device as recited, for example, in claim 1. However, the Examiner concedes on page 3 of the Office Action that Shirasaki fails "to teach *explicitly* that the first and second reflecting films of multi-layer film structure with plural films," referring to the *first and second multi-layer films* of claim 1, for example. Therefore, the Examiner relies on Spiller et al. (Spiller) to teach a first multi-layer film and second multi-layer film. Spiller describes a technology for removing a multi-layer distortion caused by a stress. However, neither reference discloses a **first multi-layer film** formed on the first surface of the substrate, a **fixing material** fixed to the first multi-layer film and the first surface, and a **second multi-layer film** formed on the second surface of the substrate, as recited, for example, in claim 1. Furthermore, Spiller does not disclose an optical device *wherein the first surface of the substrate is opposite the second surface of the substrate*, as recited, for example, in claim 1. (see figures 7A and 7B of the present invention). The method taught by Spiller places a first multilayer film **directly on top** of a second multilayer film formed on a surface of a substrate. (see figure 1 of spiller). Therefore, Spiller fails to teach the present invention as recited, for example, in claim 1.

The Examiner further concedes on page 4 of the Office Action that Shirasaki fails to "teach *explicitly* that the VIPA has a stress correction film formed on the second multi-layer film," referring to the *stress correction film* of claim 1, for example. Furthermore, the Examiner also concedes on page 4 of the Office Action that both Shirasaki and Spiller fail to "teach explicitly that the stress correction film is provided to correct the stress imposed by both reflecting films on the both sides of the substrate," referring, for example, to claim 1. The Applicant agrees with the Examiner that neither Shirasaki nor Spiller teaches a stress correction film, as recited, for example, in claim 1.

The Examiner relies on Okumura et al. (Okumura) to teach a disk substrate support member having the same thermal expansion coefficient as the substrate. However, Okumura fails to teach a *fixing material having substantially the same thermal expansion coefficient as the substrate and fixed to the first multi-layer film*, as recited, for example, in claim 1. Therefore, Okumura does not cure the deficiencies of Shirasaki and Spiller.

The Examiner seeks overcome the concessions discussed above by relying upon "Official Notice." For example, the statement by the Examiner on page 3, of the Office Action

that, "this reference (Shirasaki) however does not teach *explicitly* that the first and second reflecting films of multi-layer film structure with plural films. However it is rather **standard knowledge** in the art that reflective film can be formed by multi-layer structure with alternatively laminated high and low refractive index materials, (please see the explicitly demonstration of Spiller et al wherein the reflecting layer has multi-layer structure of alternatively arranged high and low refractive index materials, Figure 1)," also infers an assertion of common knowledge and Official Notice.

The Applicant respectfully traverses the Examiner's statements and requests the Examiner produce authority for the statement. The Applicant specifically points out the following errors in the Examiner's action.

First, the Examiner uses common knowledge as the principal evidence for the rejection. As explained in M.P.E.P. § 2144.03(E):

any facts so noticed should . . . serve only to 'fill in the gaps' in an insubstantial manner which might exist in the evidentiary showing made by the Examiner to support a particular ground of rejection. It is never appropriate to rely solely on common knowledge in the art without evidentiary support in the record as the principal evidence upon which a rejection was based.

Second, the noticed fact is not considered to be common knowledge or well-known in the art. In this case, the limitation is not capable of instant and unquestionable demonstration as being well-known. Instead, this limitation is unique to the present invention. See M.P.E.P. § 2144.03(A) ("the notice of facts beyond the record which may be taken by the Examiner must be "capable of such instant and unquestionable demonstration as to defy dispute").

Third, there is no evidence supporting the Examiner's assertion. See M.P.E.P. § 2144.03(B) ("there must be some form of evidence in the record to support an assertion of common knowledge").

Fourth, it appears that the Examiner also bases the rejection, at least in part, on personal knowledge. The Examiner is required under 37 C.F.R. § 1.104(d)(2) to support such an assertion with an affidavit when called for by the Applicant. Thus, Applicant calls upon the Examiner to support such assertion with an affidavit.

Therefore, the Applicant respectfully submits that the Examiner has not established a ***prima facie*** case of obviousness. The Examiner has not established that it would have been obvious to derive the present invention from Shirasaki's virtual imaged phased array and

Spiller's technology for removing a multi-layer distortion caused by a stress and Okumura's disk substrate support member based on common knowledge and Official Notice.

Although the above comments are specifically directed to claim 1, it is respectfully submitted that the comments would be helpful in understanding differences in various claims over the cited reference.

**IV. CLAIMS 1-4 ARE REJECTED UNDER 35 U.S.C. 103(a) AS BEING UNPATENTABLE OVER SHIRASAKI (U.S. 5,930,045) IN VIEW OF FUJII ET AL. (U.S. 5,424,876) AND OKUMURA ET AL. (U.S. 5,969,902)**

The rejections of claims are respectfully traversed and reconsideration is requested. Similar to discussion in section III above, the Examiner relies on Shirasaki to teach the optical device as recited, for example, in claim 1. The Examiner concedes on page 5 of the Office Action however, that Shirasaki "does not teach *explicitly* that the first and second reflecting films [are] of multi-layer film structure with plural films." Therefore, the Examiner relies on Fujii et al. (Fujii) to teach "a reflective film that is comprised of plural layers of different refractive index." However, neither Shirasaki nor Fujii teach **a first multi-layer film formed on the first surface of the substrate, a fixing material fixed to the first multi-layer film and a second multi-layer film formed on the second surface of the substrate**, as recited, for example, in claim 1.

The Examiner also concedes on page 6 of the Office Action, that Sharasaki fails to teach *explicitly* that the VIPA has a *stress correction film* formed on the second multi-layer film. Therefore, the Examiner relies on Fujii to teach **a stress correction film** formed on the second multi-layer film, as recited, for example, in claim 1. Fujii discloses a silicon dioxide first under layer for compensating for a tensile stress imposed by the surface reflecting films. (see column 2, lines 10-16 of Fujii). However, Fujii fails to disclose a *stress correction film* for **correcting distortion of the substrate due to a difference in stress between the first and second multi-layer films formed on the first and second surfaces**, as recited, for example, in claim 1. In the same paragraph, the Examiner further concedes that neither Sharasaki or Fujii teaches the stress correction film is provide to correct the stress imposed by both reflecting films on both sides of the substrate. The Applicant agrees with the Examiner that both Sharasaki and Fujii fail to teach a stress correction film formed on the second multi-layer film to compensate for stress imposed by both reflecting films.

On page 7, of the Office Action, the Examiner relies on Okumura to teach a disk substrate support member having the same thermal expansion coefficient as the substrate.

However, Okumura fails to teach *a fixing material having substantially the same thermal expansion coefficient as the substrate and fixed to the first multi-layer film*, as recited, for example, in claim 1. Therefore, Okumura does not cure the deficiencies of Shirasaki and Fujii.

The Examiner seeks overcome the concessions discussed above by relying upon "Official Notice." For example, the statement by the Examiner on pages 5, of the Office Action that, "however it is rather **standard knowledge** in the art that reflective film can be formed by multi-layer structure with plural layers of different refractive index materials," also infers an assertion of common knowledge and Official Notice.

The Applicant respectfully traverses the Examiner's statements and requests the Examiner produce authority for the statement. The Applicant specifically points out the following errors in the Examiner's action.

First, the Examiner uses common knowledge as the principal evidence for the rejection. As explained in M.P.E.P. § 2144.03(E):

any facts so noticed should . . . serve only to 'fill in the gaps' in an insubstantial manner which might exist in the evidentiary showing made by the Examiner to support a particular ground of rejection. It is never appropriate to rely solely on common knowledge in the art without evidentiary support in the record as the principal evidence upon which a rejection was based.

Second, the noticed fact is not considered to be common knowledge or well-known in the art. In this case, the limitation is not capable of instant and unquestionable demonstration as being well-known. Instead, this limitation is unique to the present invention. See M.P.E.P. § 2144.03(A) ("the notice of facts beyond the record which may be taken by the Examiner must be "capable of such instant and unquestionable demonstration as to defy dispute").

Third, there is no evidence supporting the Examiner's assertion. See M.P.E.P. § 2144.03(B) ("there must be some form of evidence in the record to support an assertion of common knowledge").

Fourth, it appears that the Examiner also bases the rejection, at least in part, on personal knowledge. The Examiner is required under 37 C.F.R. § 1.104(d)(2) to support such an assertion with an affidavit when called for by the Applicant. Thus, Applicant calls upon the Examiner to support such assertion with an affidavit.

Therefore, the Applicant respectfully submits that the Examiner has not established a ***prima facie*** case of obviousness. The Examiner has not established that it would have been

obvious to derive the present invention from Shirasaki's virtual imaged phased array and Fujii's surface reflecting mirror and Okumura's magnetic disk substrate support based on common knowledge and Official Notice.

Although the above comments are specifically directed to claim 1, it is respectfully submitted that the comments would be helpful in understanding differences in various claims over the cited reference.

**V. CONCLUSION**

It is respectfully submitted that the claims are not taught, disclosed or suggested by the prior art. The claims are therefore in a condition suitable for allowance. An early Notice of Allowance is requested.

If any further fees, other than and except for the issue fee, are necessary with respect to this paper, the U.S.P.T.O. is requested to obtain the same from deposit account number 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

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By: \_\_\_\_\_

Paul I. Kravetz  
Registration No. 35,230

1201 New York Ave, N.W., Suite 700  
Washington, D.C. 20005  
Telephone: (202) 434-1500  
Facsimile: (202) 434-1501